

Polarization Imaging Apparatus for Cell and Tissue Imaging and Diagnostics, Phase I

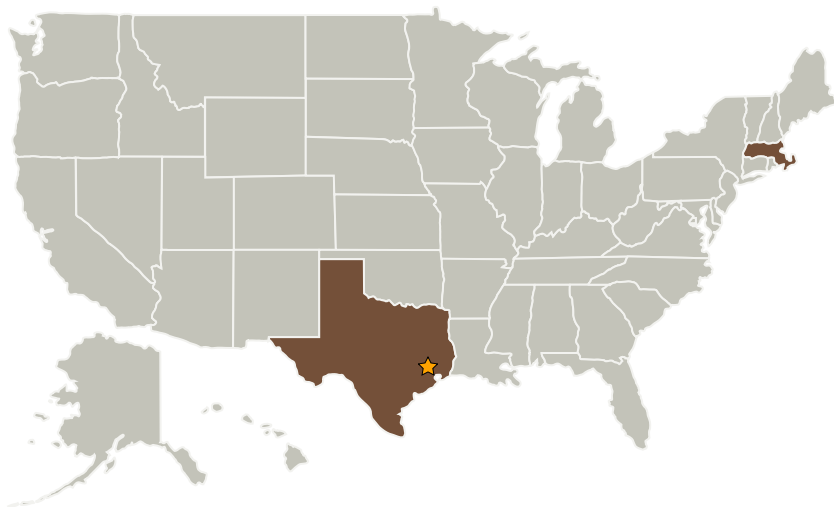
Completed Technology Project (2005 - 2006)



Project Introduction

In recent years there has been an increasing interest in the propagation of polarized light in randomly scattering media. The investigation of backscattered light is of particular interest since most medical applications aimed at the in-vivo characterization of biological tissue rely on backscattered light. By recording the spatially dependent response of a medium to a polarized point source, one may obtain information about the scattering particles that are not accessible to mere intensity measurements. In this program, Boston Applied Technologies Incorporated (BATI), together with the Catholic University of America (CUA) proposes an innovative NIR polarization imaging solution based on high performance fast tunable phase retarder and novel algorithm. It will have the ability to record both scattering images and Stokes polarization imaging. It allows very fast recording the polarization images at the speed limit of a CCD. It contains no moving parts and can accommodate to most of the existing CCD cameras. The unique measurement procedure allows efficient, accurate sensing of the polarization imaging. A computer-aided diagnosis (CADx) software will be developed for the proposed polarization imaging system.

Primary U.S. Work Locations and Key Partners



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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Johnson Space Center (JSC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
★ Johnson Space Center(JSC)	Lead Organization	NASA Center	Houston, Texas
Boston Applied Technologies, Inc.	Supporting Organization	Industry Minority-Owned Business	Woburn, Massachusetts

Primary U.S. Work Locations

Massachusetts	Texas
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Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Principal Investigator:

Kevin Zou

Technology Areas

Primary:

- TX14 Thermal Management Systems
 - └ TX14.2 Thermal Control Components and Systems
 - └ TX14.2.8 Measurement and Control